



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,852	07/28/2006	Nicolas Sarrut	294254US0PCT	9763

22850 7590 07/24/2009  
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
----------

EOM, ROBERT J

ART UNIT	PAPER NUMBER
----------	--------------

1797

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

07/24/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,852	<b>Applicant(s)</b> SARRUT ET AL.	
	<b>Examiner</b> ROBERT EOM	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8/14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims **8 and 10** are rejected under 35 U.S.C. 102(b) as being anticipated by Brennen et al. (US 2003/0224531 A1).

Regarding claim 8, Brennen discloses a microfluidic device (**Fig. 4, [0048]**) comprising: a support (**see: well plate housing 93**), a thin layer (**see: microfluidic housing 95**) integral with the support and in which the fluidic network (**see: process zones 105**) and electronebulization nozzle are made (**see: triangular cantilevered electrospray nozzles**). The electronebulization nozzle comprising a channel (**see: microchannels 109**) which is connected to the fluidic network and the fluid outlet orifice (**see: electrospray emitters 123**), wherein said electronebulization nozzle forms a cantilever end relative to the support such that the channel is parallel to the support's upper surface plane. The channel further having an electrode near the terminus of the electrospray emitter (**[0038]**). Regarding the recitation of a method of making said on-chip laboratory, the examiner notes that the determination of patentability is determined by the recited structure of the apparatus and not by a method of making said structure. A claim containing a recitation with respect to the manner in which a claimed apparatus

Art Unit: 1797

is made does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim.

Regarding claim 10, Brennen further discloses a variety of materials used to form the microanalytical device of the invention ([0050]-[0052]), among them are conducting materials such as metals, and polymer laminates such as a polymer coated with copper.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 1797

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brennen et al. (US 2003/0224531 A1), in view of Jedrzejewski et al. (US 2003/0013203 A1).

Regarding claim 9, Brennen discloses all of the claim limitations as set forth above. Brennen further discloses a variety of materials, including silicon ([0040]), the microfluidic device may be manufactured from, selected with regard to physical and chemical characteristics that are desirable for a particular application ([0050]). While Brennen does not explicitly disclose the electrodes ([0038]) being a doped portion of the support, Jedrzejewski teaches electrodes may be incorporated into microfluidic devices in a variety of ways ([0138], **see: processes for incorporating such electrodes are described in USP 5,750,015**). It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate electrodes into the microanalytical device of Brennen through doping a portion of the substrate, as taught by Jedrzejewski, since doing so provides for a flush, seamless electrode which enhances the discharge of liquid from the electrospray emitters.

7. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennen et al. (US 2003/0224531 A1), in view of Jedrzejewski et al. (US 2003/0013203 A1), in further view of Yobas et al. (US 2003/0180965 A1).

Regarding claims 11-12, modified Brennen discloses all of the claim limitations as set forth above. Modified Brennen further discloses a cover hermetically covering

Art Unit: 1797

the fluidic network (**Fig. 4, see: top plate 97**). While modified Brennen does not explicitly disclose the cover being provided with a fluid access means at the fluid inlet orifice and being provided with said electrical conduction means. Yobas et al. teaches a micro-fluidic device (**Abstract**) with a channel and inlet orifice (**Fig. 5, see: orifice 204 and channel 204a**). A cover plate (**Fig. 5, see: cover plate 194**) is bonded to the substrate (**Fig. 5, see: substrate 72**). The cover plate has an orifice (**Fig. 5, see: cover plate orifice 200 which provides access to the orifice 204 of the device**).

The cover plate further has electrodes which provide the electrical conduction means of the device (**Fig. 5, see: electrodes 190 and 192; [0050]**). It would have been obvious to one having ordinary skill in the art at the time of the invention to use the cover with a fluid access means to the inlet orifice as well as having electrical conduction means on the microfluidic device of modified Brennen, as taught by Yobas, since an inlet orifice provides a way for fluids to be dispensed into, withdrawn or exchanged in the microfluidic device (**Yobas: [0051]**). Integrating electrodes into the lid enhances the functionality of the device (**Yobas: [0051]**) and prevents any possible shorts or electrical issues.

Regarding claims 13 and 14, modified Brennen discloses all of the claim limitations as set forth above. Brennen further discloses a variety of materials used to form the microanalytical device of the invention (**[0050]-[0052]**), among them are conducting materials: such as metals and polymer laminates such as a polymer coated with copper, and semiconducting materials: such as silicon.

***Response to Arguments***

8. Applicant's arguments with respect to claims 8-14 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended language to the electronebulization nozzle (within independent claim 8), regarding the spatial orientation of the nozzle and the channel to the support, which was not originally presented in combination to the dependent claims for consideration upon its merits for patentability.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kameoka et al. (US 2003/0213918 A1) discloses an electrospray emitter for a microfluidic channel; Bousse et al. (USP 6,803,568 B2) discloses a multi-channel microfluidic chip for electrospray ionization.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1797

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT EOM whose telephone number is (571)270-7075. The examiner can normally be reached on Mon.-Thur., 9:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/  
Primary Examiner, Art Unit 1797

/R. E./  
Examiner, Art Unit 1797